

ABSTRACT

A steering system for an articulated vehicle has a microprocessor connected to a proportional solenoid valve which controls the direction, amount and rate of flow of hydraulic fluid to and from hydraulic articulation cylinders, which provide articulation between the frames of the articulated vehicle. A positional feedback sensor measures the angle of articulation between the frames and communicates the angle of articulation to the processor. A gear sensor monitors the gear that the vehicle is in and communicates it to the processor. A user input device allows a user to select the desired level of steering sensitivity and also allows the user to input the size of the tires installed on the vehicle. A steering device allows the operator to provide steering input and communicates electrical steering signals to the processor based on the steering input from the operator. The processor controls the valve to provide the steering response selected by the operator, to emulate castoring so that the vehicle is returned to a straight ahead position in the center position of the steering device, to vary the stop angle based on the tire size and to gradually stop articulation at the stop angle, to gradually start and stop articulation so as to avoid hydraulic hammering. If the steering valve has a source of supply which is common to other valves of the hydraulic system, the processor can also control all of the valves to give priority to the steering valve. In addition, the interface between the steering device and the processor is the same for different types of steering devices, i.e., a steering wheel or a joystick, so that different types of steering devices may be easily provided, depending on a customer's request.